

Amendments To The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A process for the conversion of one or more unsaturated hydrocarbons to one or more ~~oxidation products~~ epoxides which process comprises reacting one or more unsaturated hydrocarbons in a reaction mixture under oxidation conditions in the presence of an oxidant, a heterogeneous catalyst and a solvent characterized in that the catalyst comprises a metal selected from the group consisting of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo and W, and that carbon dioxide is present in the reaction mixture under supercritical conditions and wherein the reaction mixture comprises at least 1% by weight of the carbon dioxide.
2. (Previously Presented) The process of claim 1 wherein the catalyst is a metal molecular sieve.
3. (Currently Amended) The process of claim 1 wherein the metal is Ti, Zr or Hf. ~~a Group IVB metal.~~
4. (Previously Presented) The process of claim 3 wherein the metal is titanium.
5. (Previously Presented) The process of claim 1 wherein the solvent is methanol.
6. (Previously Presented) The process of claim 1 wherein the oxidant is hydrogen peroxide.
7. (Previously Presented) The process of claim 1 wherein the unsaturated hydrocarbon is an olefin.

8. (Previously Presented) The process of claim 7 wherein the carbon dioxide constitutes more than 50% by weight of the solvent used in the reaction mixture.

9. (Cancelled)

10. (Cancelled)

11. (Withdrawn-Currently Amended) The process of claim 91 further comprising an additional step wherein the epoxide is converted to one or more acids or alcohols.

12. (Withdrawn-Currently Amended) The process of claim 1 further comprising an additional step wherein the epoxide is converted to one or more~~11 wherein the one or more acids or alcohols are~~ linear acids and linear alcohols.

13. (Previously Presented) The process of claim 1 wherein the ratio of solvent to unsaturated hydrocarbon is less than 8:1.

14. (Previously Presented) The process of claim 13 wherein the ratio is 1:1 or less.

15. (Cancelled)

16. (Previously Presented) The process of claim 1 wherein the reaction mixture comprises at least 25% by weight of carbon dioxide.

17. (Previously Presented) The process of claim 1 wherein the carbon dioxide constitutes more than 50% by weight of the solvent used in the reaction mixture.

18. (Previously Presented) The process of claim 1 wherein the catalyst is selected from one of the following: TS-1, TS-2, TS-3, titanium zeolite beta, TS-48, titanium mordenite and titanium silicalite.

19. (Previously Presented) The process of claim 1 wherein the reaction residence time is at least 20% less than that required to achieve 50% conversion without the presence of carbon dioxide.

20. (Previously Presented) The process of claim 19 wherein the reaction residence time is at least 50% less.

21. (Previously Presented) The process of claim 20 wherein the conversion is 90%.

22. (Previously Presented) The process of claim 1 wherein the reaction pressure is between 1 and 700 atmospheres.

23. (Previously Presented) The process of claim 1 wherein the reaction temperature is from 0°C to 100°C.

24. (Previously Presented) The process of claim 23 wherein the reaction temperature is within the range 40°C to 80°C.

25. (Previously Presented) The process of claim 1 wherein the reaction residence time is within the range of 10 minutes to 48 hours.

26. (Currently Amended) A process for the conversion of one or more olefins selected from the group consisting of ethylene, propylene, the butenes, butadiene, the pentenes, isoprene, hexenes, heptenes, octenes, diisobutylene, nonenes, the trimers and tetramers of propylene, cyclopentene, cyclohexene, cycloheptene, cyclooctene, cyclooctadiene, dicyclopentadiene,

methylenecyclopropane, methylenecyclopentane, methylenecyclohexane, vinylcyclohexane, and vinyl cyclohexene, unsaturated hydrocarbons to one or more epoxides which process comprises reacting one or more unsaturated hydrocarbons in a reaction mixture under oxidation conditions in the presence of an oxidant, a heterogeneous catalyst and a solvent characterized in that the catalyst comprises a metal selected from the group consisting of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo and W, and that carbon dioxide is present in the reaction mixture under supercritical conditions and wherein the reaction mixture comprises at least 1% by weight of the carbon dioxide.

27. (Currently Amended) The process of claim 26 wherein the catalyst is a molecular sieve containing Ti, Zr or Hf, a Group IVB metal.

28. (Currently Amended) The process of claim 27 wherein the metal is ~~a Group IVB metal~~ is titanium.

29. (Currently Amended) A process for the conversion of one or more unsaturated hydrocarbons to one or more epoxides which process comprises reacting one or more unsaturated hydrocarbons in a reaction mixture under oxidation conditions in the presence of an oxidant, a heterogeneous catalyst and a solvent characterized in that the catalyst is a molecular sieve containing Ti, and that carbon dioxide is present in the reaction mixture under supercritical conditions and wherein the reaction mixture comprises at least 1% by weight of the carbon dioxide and ~~The process of claim 28~~ wherein the titanium is substituted for a portion of the silicon atoms in the lattice frame work of the molecular sieve.

30. (Previously Presented) The process of claim 26 wherein the solvent is methanol.

31. (Previously presented) The process of claim 26 wherein the oxidant is hydrogen peroxide.

32. (Cancelled)

33. (Previously Presented) The process of claim 26 wherein the ratio of solvent to unsaturated hydrocarbon is less than 8:1.

34. (Cancelled)

35. (Previously Presented) The process of claim 26 wherein the reaction mixture comprises at least 25% by weight of carbon dioxide.

36. (Previously Presented) The process of claim 26 wherein the heterogeneous catalyst is selected from the group consisting of: TS-1, TS-2, TS-3, titanium zeolite beta, TS-48, titanium mordenite and titanium silicalite.

37. (Previously Presented) The process of claim 26 wherein the reaction residence time is at least 20% less than that required to achieve 50% conversion without the presence of carbon dioxide in the supercritical state.

38. (Previously Presented) The process of claim 26 wherein the reaction is run at a pressure between 1 and 700 atmospheres and / or at a temperature from 0°C to 100°C.

39. (Previously Presented) The process of claim 26 wherein the reaction has a residence time of from 10 minutes to 48 hours.

40. (Withdrawn-Currently Amended) The process of claim 26 further comprising an additional step wherein the epoxide is converted to one or more acids or alcohols.

41. (Withdrawn-Currently Amended) The process of claim 26 further comprising an additional step wherein the epoxide is converted to one or more ~~40 wherein the one or more acids or alcohols are linear acids or and linear alcohols.~~

42. (Previously Presented) A process for the conversion of one or more unsaturated olefins to one or more epoxides comprising reacting one or more unsaturated olefins in a reaction mixture under oxidation conditions comprising a pressure of between 1 and 700 atmospheres, a temperature from 1 to 100°C, and a residence time of 10 minutes to 48 hours in the presence of an oxidant, a heterogeneous catalyst comprising a molecular sieve where titanium is substituted for a portion of the silicon atoms in the lattice frame work of the molecular sieve, and a solvent, wherein carbon dioxide is present in the reaction mixture under supercritical conditions and the reaction mixture comprises at least 1% by weight of carbon dioxide.

43. (Previously Presented) The process of claim 42 wherein the heterogeneous catalyst is selected from the group consisting of: TS-1, TS-2, TS-3, titanium zeolite beta, TS-48, titanium mordenite and titanium silicalite.

44. (Previously Presented) The process of claim 42 wherein the solvent is methanol and/or the oxidant is hydrogen peroxide.

45. (Previously Presented) The process of claim 42 wherein the olefin is selected from the group consisting of ethylene, propylene, the butenes, butadiene, the pentenes, isoprene, hexenes, heptenes, octenes, diisobutylene, nonenes, the trimers and tetramers of propylene, cyclopentene, cyclohexene, cycloheptene, cyclooctene, cyclooctadiene, dicyclopentadiene, methylenecyclopropane, methylenecyclopentane, methylenecyclohexane, vinylcyclohexane, and vinyl cyclohexene.

46. (Previously Presented) The process of claim 42 wherein the olefin is selected from the group consisting of 1-octene, propylene and cyclopentene.

47. (Previously Presented) The process of claim 42 where the olefin is a mixture of olefins.

48. (Previously Presented) The process of claim 42 where the olefin is a raffinate mixture which comprises mixed butenes; 1-butene, cis-2butene, trans-2-butene and iso-butene.